



Dart Hawkesbury  
1270 Aberdeen St Hawkesbury, ON K6A 1K7 Canada  
Tel (613) 632-5200  
Fax (613) 632-5246

Print

# Purchasing Receipts

PO No	Supplier	Line Item No	Rel No	Terms	Purchased Item	Description	For Part No	Project	Equipment ID	Order Qty	Due Date	Received Quantity	Accounting Job No	Container No	Status	Receive Date	Price/Unit	Aging Past Days	Total	Supplier Name
PO042207	TWM001-VU	1	1	Net 30	M6061T6T0.3125W.058	Aluminum Tube .3125 X .058W : MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR AMS A-225/8 OR AMS 4080 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft				96	1/16/2019	96		S145220	Stock	1/15/2019	\$ 3.08 / ft	1	\$295.57	TW Metals
		2			M6061T6T0.625W.049	6061-T6 Round Tube .625 X .049W : MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR AMS A-225/8 OR AMS 4080 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft				24		24		S145221	Stock	1/15/2019	\$ 3.50 / ft	1	\$84.00	TW Metals
		3			M6061T6T1.000W065	6061T6 Round Tube 1.00 X .065W : MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR AMS A-225/8 OR AMS 4080 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft				60		60		S145222	Stock	1/15/2019	\$ 2.96 / ft	1	\$177.60	TW Metals
		4			M304P0.675W.081	304/316 Pipe .675 OD x .091 Wall Thickness : MATERIAL: TP304/TP316 STAINLESS STEEL SEAMLESS PIPE AS PER ASTM A312/ASME SA312 receive ft				24		24		S145223	Stock	1/15/2019	\$ 5.00 / ft	1	\$120.00	TW Metals

PO No	Supplier	Line Item No	Rel No	Terms	Purchased Item	Description	For Part No	Project	Equipment ID	Order Qty	Due Date	Received Quantity	Accounting Job No	Container No	Status	Receive Date	Price/Unit	Aging Days	Past Due	Total	Supplier Name
		5			M304TR0.375W.065	304 Round Tube .375 X .065W : MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269 receive ft				60		60		S145223	Stock	1/15/2019	\$ 1.86 / ft	1		\$111.64	TW Metals
		6			M304TR0.500W.035	304 Round Tube .500 X .035W : MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269 receive ft						60		S145224	Stock	1/15/2019	\$ 1.84 / ft	1		\$110.53	TW Metals
		7			M304TR0.750W.049	304 Round Tube .750 X .049W : MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269 receive ft						60		S145225	Stock	1/15/2019	\$ 2.58 / ft	1		\$154.74	TW Metals
										<b>Total:</b>		<b>384</b>								<b>\$1,054.09</b>	



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

# PURCHASE ORDER

## PO042207



**Supplier:** TWM001-VU  
TW Metals  
PO Box 933014  
Atlanta, GA 31193-3014 USA  
Phone: 585 768 5600  
Fax: 585 768 5601

**Ship To:** 1270 Aberdeen Street  
Hawkesbury  
ON  
K6A 1K7 Canada  
Phone: 613-632-5200

**PO No:** PO042207

**PO Date:** 1/8/19

**Due Date:** 1/16/19

**Purchase Order  
Revision:**

**Revision Date:**

**Ship-To Contact:** Lavoie, Chantal  
clavoie@dartaero.com

**Via:** Ground

**Pymt Terms:** Net 30

**Freight Terms:**

**Special Comments:**

E-MAN 018-2019

### Items

Line Item	Job	Part	Supplier Part No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1 JAT		M6061T6T0.3125W.058		Aluminum Tube .3125 X .058W : MATERIAL: 6061- T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ- A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft	Firmed	-	1/16/19	96 ft	0 ft	96 ft	\$3.0789/ft	\$295.57
2 JAT		M6061T6T0.625W.049		6061-T6 Round Tube .625 X.049W : MATERIAL: 6061- T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ- A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft	Firmed	-	1/16/19	24 ft	0 ft	24 ft	\$3.50/ft	\$84.00



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

# PURCHASE ORDER

## PO042207



## Items

Line Item	Job	Part	Supplier Part No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
3 JA		M6061T6T1.000W065		6061T6 Round Tube 1.00 X .065W : MATERIAL: 6061- T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ- A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft	Firmed	-	1/16/19	60 ft	0 ft	60 ft	\$2.96/ft	\$177.60
								60 ft	60 ft	AT 19/01/16		
4 JA		M304P0.675W.091		304/316 Pipe .675 OD x .091 Wall Thickness : MATERIAL: TP304/TP316 STAINLESS STEEL SEAMLESS PIPE AS PER ASTM A312/ASME SA312 receive ft	Firmed	-	1/16/19	24 ft	0 ft	24 ft	\$5.00/ft	\$120.00
								23.4124				
5 JA		M304TR0.375W.065		304 Round Tube .375 X .065W : MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269 receive ft	Firmed	-	1/16/19	60 ft	0 ft	60 ft	\$1.8607/ft	\$111.64
								60 ft	60 ft	AT 19/01/16		
6 JA		M304TR0.500W.035		304 Round Tube .500 X .035W : MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269 receive ft	Firmed	-	1/16/19	60 ft	0 ft	60 ft	\$1.8422/ft	\$110.53
								60 ft	60 ft	AT 19/01/16		
7 JA		M304TR0.750W.049		304 Round Tube .750 X .049W : MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269 receive ft	Firmed	-	1/16/19	60 ft	0 ft	60 ft	\$2.579/ft	\$154.74
								60 ft	60 ft	AT 19/01/16		

Grand Total: \$1,054.09



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

# PURCHASE ORDER

## PO042207



### Order Notes

#### Procurement Quality Clauses

- A005 right of entry
- A012 chemical and physical test report
- A016 personnel qualification
- A017 raw material identification (as applicable)
- A026 certification of material conformance
- A041 quality management system
- A042 dart notification by supplier
- A043 retention of quality documents
  
- A048 counterfeit parts avoidance, detection, mitigation and disposition program
- A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit [www.dartaerospace.com](http://www.dartaerospace.com) for further explanation.

Plex 1/8/19 1:33 PM dart.lavoie.chantal

## Chantal Lavoie

---

**From:** Eric Larocque  
**Sent:** Monday, January 07, 2019 11:25 AM  
**To:** Chantal Lavoie  
**Subject:** Matériel à commander

Salut Chantal;

On aurait de besoin du Round tubing en ss 0.375"ODx0.065W. Ce matériel est utilisé pour faire nos tests de soudure.

Le system dit qu'il aurait un container de FM134993 avec 9.9' dedans; ce n'est pas existant j'ai checker 2 fois.

Est ce qu'on peut commander 40' de M304TR0.375W.065 pour en mettre en stock puis de la ou pourrais en sortir pour faire nos tests.

FM134993 pourrait etre mis a 0.

Merci  
Eric





O'Neal High-Performance Metals Group



Packing Slip

ORDER NO.: 80982813 FROM: CHIC PAGE 1

CUST NUMBER: 1203820 NET WGT: 79.989 REQ.DATE: 01/16/19 CONFIRMED  
SOLD TO: SHIP TO:  
DART AEROSPACE LTD DART AEROSPACE LTD  
1270 ABERDEEN ST 1270 ABERDEEN ST  
HAWKESBURY ON HAWKESBURY ON  
CANADA ONTARIO CANADA  
CN K6A 1K7 CN K6A 1K7

SALESPERSON: DONNA SMALLEY SHIP BY: 01/09/19  
TERMS: NET 30 DAYS VIA: COMMON CARRIER  
F.O.B.: SHIPPING POINT FREIGHT: PREPAID  
CUST ORD NO.: PO042207 RELEASE NO.:  
RECEIVING PHONE:

LINE ITEM DESCRIPTION WIDTH LENGTH  
0001 41723 D6061-T6 5/16 OD X .058 WA 12 FT ML

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT	PCS
	96.000 FT	96.000 FT	96.000 FT	5.242	8

\*\* 1 TEST REPORTS REQUIRED \*\*  
\*\* 1 CERTS REQUIRED \*\*

ECCN: EAR99 Export License: NLR Expiration Date: 0/00/00  
PO:49380591 HT: 2927553 PC: 8 CUSTOMER QTY: UOM  
MLT:UNITED STATES MFG:UNITED STATES SLB/CL:2927553

0002 42506 D6061-T6 5/8 OD X .049 WA 12 FT ML

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT	PCS
	24.000 FT	24.000 FT	24.000 FT	2.494	2

\*\* 1 TEST REPORTS REQUIRED \*\*  
\*\* 1 CERTS REQUIRED \*\*

ECCN: EAR99 Export License: NLR Expiration Date: 0/00/00  
PO:49392618 HT: E002783200001 PC: 2 CUSTOMER QTY: UOM  
MLT:UNITED STATES MFG:UNITED STATES SLB/CL:226715

0003 38420 SMLS 304/L A-312 3/8 SCH 40 17/24 FT

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT	PCS
	24.000 FT	23.417 FT	23.417 FT	13.414	1

\*\* 1 TEST REPORTS REQUIRED \*\*  
\*\* 1 CERTS REQUIRED \*\*

ECCN: 2B999.g Export License: NLR Expiration Date: 0/00/00  
PO:49371981 HT: 11H347 PC: 1 CUSTOMER QTY: UOM  
MLT:CHINA MFG:CHINA SLB/CL:LTQP57

1

THANK YOU FOR THIS ORDER

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE  
PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL  
REVIEW.  
<http://www.twmetals.com/invoice-terms.html>



O'Neal High-Performance Metals Group



Packing Slip

ORDER NO.: 80982813

FROM: CHIC

PAGE 2

CUST NUMBER: 1203820  
SOLD TO:  
DART AEROSPACE LTD  
1270 ABERDEEN ST  
HAWKESBURY ON  
CANADA

CN K6A 1K7

79.989 REQ.DATE: 01/16/19 CONFIRMED  
SHIP TO:  
DART AEROSPACE LTD  
1270 ABERDEEN ST  
HAWKESBURY ON  
ONTARIO CANADA

CN K6A 1K7

SALESPERSON: DONNA SMALLEY  
TERMS: NET 30 DAYS  
F.O.B.: SHIPPING POINT  
CUST ORD NO.: PO042207

SHIP BY: 01/09/19  
VIA: COMMON CARRIER  
FREIGHT: PREPAID  
RELEASE NO.:  
RECEIVING PHONE:

LINE ITEM DESCRIPTION  
0004 36311 SMLS CD 304/L A269 3/8 OD X .065 WA  
WIDTH LENGTH  
20' ML

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT	PCS
	60.000 FT	60.000 FT	60.000 FT	12.910	3

\*\* 1 TEST REPORTS REQUIRED \*\*  
\*\* 1 CERTS REQUIRED \*\*

ECCN: 2B999.g Export License: NLR  
PO:49373789 HT:YX1606643 M PC: 3  
MLT:CHINA MFG:CHINA

Expiration Date: 0/00/00  
CUSTOMER QTY: UOM  
SLB/CL:-

0005 36449 SMLS CD 304/L A269 1/2 OD X .035 WA  
20' ML

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT	PCS
	60.000 FT	60.000 FT	60.000 FT	10.426	3

\*\* 1 TEST REPORTS REQUIRED \*\*  
\*\* 1 CERTS REQUIRED \*\*

ECCN: 2B999.g Export License: NLR  
PO:49388494 HT:11S349 M PC: 3  
MLT:CHINA MFG:CHINA

Expiration Date: 0/00/00  
CUSTOMER QTY: UOM  
SLB/CL:-

0006 36860 SMLS CD 304/L A269 3/4 OD X .049 WA  
20' CL

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT	PCS
	60.000 FT	60.000 FT	60.000 FT	22.003	3

\*\* 1 TEST REPORTS REQUIRED \*\*  
\*\* 1 CERTS REQUIRED \*\*

ECCN: 2B999.g Export License: NLR  
PO:49387568 HT:N18013IAS13 M PC: 3  
MLT:CHINA MFG:CHINA

Expiration Date: 0/00/00  
CUSTOMER QTY: UOM  
SLB/CL:-

1

THANK YOU FOR THIS ORDER

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE  
PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL  
REVIEW.  
<http://www.twmetals.com/invoice-terms.html>





O'Neal High-Performance Metals Group



Packing Slip

ORDER NO.: 80982813

FROM: CHIC

PAGE 3

CUST NUMBER: 1203820 NET WGT:

79.989 REQ.DATE: 01/16/19 CONFIRMED

SOLD TO:

SHIP TO:

DART AEROSPACE LTD

DART AEROSPACE LTD

1270 ABERDEEN ST

1270 ABERDEEN ST

HAWKESBURY ON

HAWKESBURY ON

CANADA

CN K6A 1K7

ONTARIO CANADA

CN K6A 1K7

SALESPERSON:

DONNA SMALLEY

SHIP BY:

01/09/19

TERMS:

NET 30 DAYS

VIA:

COMMON CARRIER

F.O.B.:

SHIPPING POINT

FREIGHT:

PREPAID

CUST ORD NO.:

PO042207

RELEASE NO.:

RECEIVING PHONE:

LINE ITEM DESCRIPTION

0007 43284 D6061-T6 1 OD X .065 WA

WIDTH

LENGTH

12 FT ML

CLN#

ORD QTY

INVOICE QTY

SHIPPED QTY

WT

PCS

60.000 FT

60.000 FT

60.000 FT

13.500

5

\*\* 1 TEST REPORTS REQUIRED \*\*

\*\* 1 CERTS REQUIRED \*\*

ECCN: EAR99

Export License: NLR

PO:49377399 HT:F002529430001

PC: 5

Expiration Date: 0/00/00

MLT:UNITED STATES

MFG:UNITED STATES

CUSTOMER QTY:

UOM

SLB/CL:224376

BROKERS LIVINGSTON INTERNATIONAL

AREA	TYPE OF PKG	PKGS	GRS WEIGHT	WIDTH	LENGTH	HGHT
YRC	REDDICRATE	1.000	46.000	7.0000	150.0000	6
YRC	REDDICRATE	1.000	109.000	6.0000	287.0000	6
					CUBIC FT	3.6458
					CUBIC FT	5.9792
		2.000	155.000			

BY: CS  
RT 000-

UNLOAD TYPE: NONE SPECIFIED

DATE SHIPPED

DATE FILLED

THANK YOU FOR THIS ORDER

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL REVIEW.  
<http://www.twmetals.com/invoice-terms.html>



O'Neal High-Performance Metals Group



Packing  
Slip

ORDER NO.: 80982813

FROM: CHIC

PAGE 4

CUST NUMBER: 1203820 NET WGT:

79.989 REQ.DATE: 01/16/19 CONFIRMED

SOLD TO:

SHIP TO:

DART AEROSPACE LTD

DART AEROSPACE LTD

1270 ABERDEEN ST

1270 ABERDEEN ST

HAWKESBURY ON

HAWKESBURY ON

CANADA

ONTARIO CANADA

CN K6A 1K7

CN K6A 1K7

SALESPERSON:

DONNA SMALLEY

TERMS:

NET 30 DAYS

F.O.B.:

SHIPPING POINT

CUST ORD NO.:

PO042207

VIA:

COMMON CARRIER

FREIGHT:

PREPAID

RELEASE NO.:

SHIP BY:

01/09/19

235 TUBEWAY

CAROL STREAM

IL 60188

RECEIVING PHONE:

"TW Metals MSDS data is available on our web site at [www.twmetals.com](http://www.twmetals.com). MSDS data can be found under the Technical Resources Tab, Product Statistics & Data and the TW Metals MSDS's heading. If you do not have web site access you may telephone 610-458-1300 and we will mail or fax a copy of our current MSDS data to your location."

### "CERTIFICATE OF CONFORMANCE"

"TW Metals certifies that the material supplied on this purchase order and contained in the heat/lot number referenced above has been manufactured, inspected, and tested in accordance with the material specification. These records are on file at TW Metals. Packaging material for shipments to Europe and China consists of manufactured wood products and complies with the European emergency measures for coniferous non-manufactured wood packing material"

Authorized Test Report Clerk

Date: 1/09/19

These commodities have been exported from the United States in accordance with the U.S. export control laws, export administrations regulations. Diversion contrary to U.S. law prohibited.

THANK YOU FOR THIS ORDER

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL REVIEW.  
<http://www.twmetals.com/invoice-terms.html>



A COMPANY OF MUELLER INDUSTRIES

PRECISION TUBE CO.

287 WISSAHICKON AVE.  
NORTH WALES PA 19454

Control No: 6257

**CERTIFIED TEST REPORT**

CUSTOMER PURCHASE ORDER NO.	CUST. ORD. NO.	PRECISION TUBE P/N
M 49380591 LINE 001	475790	24A031250580005

**SOLD:** TW METALS  
**TO** 175 TUBEWAY  
FOREST PARK, GA 30298  
UNITED STATES

**SHIP:** TW METALS  
**TO** 175 TUBEWAY  
FOREST PARK, GA 30298  
UNITED STATES

QUANTITY ORD.	DESCRIPTION	QTY. SHIPPED	DATE SHIPPED
3204 FT	METAL - (6061) ALUM TEMPER - T6 SPEC - AMS 4082P ASTM-B-210-12 AMS-WW-T-700/6C LENGTH - 12 FT LGTH TOL +.1250 IN -.0000 IN SHAPE - ROUND FINISH - STRAIGHT EXACT LENGTHS OD .3125 +.0030 -.0030 ID WALL .0580 +.0040 -.0040	3456 FT	12/13/17

**MECHANICAL PROPERTIES**

SAMPLE #	TENSILE STRENGTH (P.S.I.)	YIELD STRENGTH (P.S.I.)	ELONGATION IN 2 INCHES (%)	ROCKWELL HARDNESS	AVERAGE GRAIN SIZE (MM.)
1	46,376	41,941	12		
2	45,712	40,899	15		

**DESTRUCTIVE TESTS**

Comments: FAR BAA COMPLIES, DFARS BAA COMPLIES, FAR TAA COMPLIES

**NON-DESTRUCTIVE TESTS**

EDDY CURRENT: PASS

**CHEMICAL COMPOSITION**

CHEMICAL COMPOSITION									
ALLOY: 6061		HEAT:		TRACEABILITY #: 2927553					
				RAW MATL VENDOR: PTC13607 - KAISER ALUMINUM INVESTMENTS					
	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Al
Min	0.40		0.15		0.80	0.04			
Max	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	Rem.
OTHER ELEMENTS: 0.05 MAX EACH / 0.15 MAX TOTAL									
We hereby certify that the material has been manufactured in accordance with the above specifications.									

We hereby certify that the material has been manufactured in accordance with the requirements of the applicable specifications and descriptions set forth on Precision Tube's sales acknowledgement. During the manufacturing, testing and inspection, the product did not come into direct contact with mercury or any of its compounds, nor with any mercury containing device or process, nor with any mercury containing device or process. Test results indicate that the material is compliant with the current revision of the RoHS Directive (2011/65/EU).

TEST REPORTS

ACCEPTED BY

DEC 19 2017

49380591

TW METALS

By: Jennifer James

Jennifer James  
Quality & Technical Lead

12/13/17

Page: 1 of 1

Melted and Manufactured in USA  
QMS Registered to ISO 9001: 2008

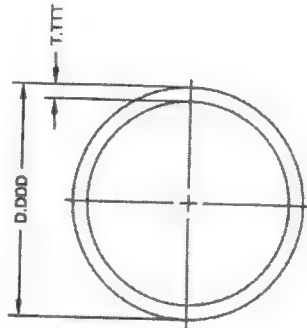
PURCHASE MATERIAL  $\triangle C$  6081-T6/627651076511 SEAMLESS TUBING

SPECIFICATION:  
 WW-T-7006  
 OR QQ-A-200/8 OR QQ-A-225/8  
 OR AMS 4080 OR AMS 4082 OR AMS 4083  
 OR ASTM B210 OR ASTM B241  $\triangle C$

PART NUMBER: M6081T6T.D.DDD|W.T.TTT  
 OD | WALL

WHERE "D.DDD" = OD IN INCHES  
 "T.TTT" = WALL THICKNESS  
 EG. 3/8" OD X 0.058 WALL = M6081T6T.D.375W0.058  $\triangle C$

MATERIAL TOLERANCE: PER ANSI H35.2  $\triangle C$



RELEASED  
 2013-07-02  
 IMP

C	COMPLETE REFORMAT, ADDED T6510 & T6511, ADDED AMS 4083, ASTM B210 & ASTM B241, ADDED MATERIAL TOLERANCE	AJS	13.08.12
B	ADD QQ-A-200/8 & QQ-A-225/8	CP	04.01.23
A	NEW ISSUE	DS	01.06.21
REV.	DESCRIPTION	BY	DATE
DESIGN	AJS		
DRAWN	AJS		
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	13.08.12		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA DRAWING NO. M6081T6T TITLE 6081-T6 TUBING SCALE NTS REV. C SHEET 1 OF 1 COPYRIGHT © 2011 BY DART AEROSPACE LTD THIS DRAWING IS PRIVATE AND CONFIDENTIAL AND IS NOT TO BE REPRODUCED OR COPIED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF DART AEROSPACE LTD.			

# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M106176703125W.058  
 DATE: 1/20/16

PO / BATCH NO.: P0042207/5145220

MATERIAL CERT REC'D: Yes  
 QUANTITY RECEIVED: 964  
 QUANTITY INSPECTED: 764  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.3125"  
 THICKNESS RECEIVED: 0.3125"  
 SHEET SIZE ORDERED: —  
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<input checked="" type="radio"/> N	
CORRECT FINISH	<input checked="" type="radio"/> Y	N	
CORROSION	Y	<input checked="" type="radio"/> N	
CORRECT GRAIN DIRECTION	<input checked="" type="radio"/> Y	N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="radio"/> Y	N	AMS 4082
CORRECT THICKNESS	<input checked="" type="radio"/> Y	N	
PHOTO REQUIRED	Y	<input checked="" type="radio"/> N	
CORRECT REF # TO LINK CERT	<input checked="" type="radio"/> Y	N	HT: 2927553
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="radio"/> Y	N	
CORRECT M# ON THE MATERIAL	<input checked="" type="radio"/> Y	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<input checked="" type="radio"/> N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<input checked="" type="radio"/> N	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

<b>QC 18 INSPECTION</b> INSPECTED BY: <u>DAS 61</u> DATE: <u>1/20/16</u>	<b>ENGINEERING SIGNOFF (if required)</b> SIGNED OFF BY: _____ DATE: _____
--	---

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in



# KAISER ALUMINUM FABRICATED PRODUCTS

## CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
6573 W. WILLIS ROAD  
CHANDLER, AZ 85226

CUSTOMER PO NUMBER: M49392618-1		CUSTOMER PART NUMBER: 42506		PRODUCT DESCRIPTION: Drawn Seamless Tube/Pipe	
KAISER ORDER NUMBER: 226715	LINE ITEM: 001	SHIP DATE: 08/28/2018	KAISER LOT NUMBER: F00278320	ALLOY: 6061	TEMPER: T6
WEIGHT SHIPPED: 386.000 LB	QUANTITY: 310.000 PCS	B/L NUMBER: 230817	DIAM/DAF/THKNS: 	WIDTH: 	LENGTH: 12.000 FT
SHIP TO:  TW METALS INC 235 WEST TUBEWAY DRIVE CAROL STREAM, IL 60188 USA			SOLD TO:  TW METALS INC 760 CONSTITUTION DRIVE SUITE 204 EXTON, PA 19341 USA		

### Actual Physical Properties

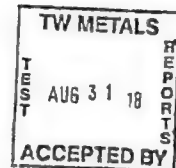
REFERENCE	DASH#	SAMPLE#	UTS (KSI)	YTS (KSI)	ELONG%	HARDNESS	CON%IACS	BEND
F00278320	0001	0001	47.4	42.2	15.0	N/A	N/A	N/A

### Chemical Composition (wt%), Aluminum Remainder

LIMITS	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Zr	Ea	Tot
Maximum	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	NA	NA	NA	0.05	0.15
Minimum	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	NA	NA	NA	0.00	0.00
D21755	.61	.30	.25	.05	.96	.10	.05	.02	.00	.00	.00	.01	.02

### Applicable Requirements:

Description: OD: 0.6250"; Wall: 0.0490"; Round @  
AMS4082P AMS-WW-T-700/6C ASTM B210-12 WW-T-700/6F  
WE TAKE EXCEPTION TO PARA. 5.2.1., Per AMS4082P, WAS NOT OILED.  
This Product Complies to FAR BAA, DFARS BAA, FAR TAA  
COMPLIES TO DIN EN 10204 JAN 2005  
No Weld Repair. Mercury Free.



### Miscellaneous Notes

MANUFACTURED IN USA MELTED IN USA  
MATERIAL COMPLIES WITH FAR BAA (FAR 52.225-1, BUY AMERICAN ACT- SUPPLIES), DFARS BAA  
(DFARS 252.225-7001 BUY AMERICAN ACT & BAL OF PAYMENTS PROG), AND FAR TAA (FAR 52.225-5  
TRADE AGREEMENTS).

# **KAISER**

## **ALUMINUM**

### **FABRICATED PRODUCTS**

KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
6573 W. WILLIS ROAD  
CHANDLER, AZ 85226

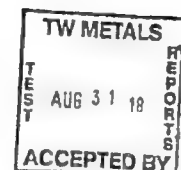
## **CERTIFIED TEST REPORT**

<http://Online.KaiserAluminum.com>

### **CERTIFICATION**

Kaiser Aluminum Fabricated Products, LLC ('Kaiser') hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms & conditions of sale. Test reports are on file subject to examination.

Hans Kattentidt, Quality Manager

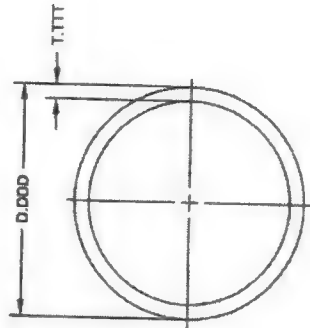


PURCHASE MATERIAL: 6061-T6 T82/T6510/T6511 SEAMLESS TUBING

SPECIFICATION: WW-T-7006  
OR QQ-A-200/8 OR QQ-A-225/8  
OR AMS 4080 OR AMS 4082 OR AMS 4083  
OR ASTM B210 OR ASTM B241

PART NUMBER: M6061T6T82T6510T6511

WHERE "D.DDD" = OD IN INCHES  
"T.TTT" = WALL THICKNESS  
EG. 3.8" OD X 0.058 WALL = M6061T6T82T6510T6511  
MATERIAL TOLERANCE: PER ANSI H33.2



RELEASED  
2013-07-02

C	COMPLETE REFORMAT. ADDED T8510 & T6511. ADDED AMS 4083. ASTM B210 & ASTM B241 ADDED MATERIAL TOLERANCE	AJS	13.06.12
B	ADD QQ-A-200/8 & QQ-A-225/8	CP	04.01.23
A	NEW ISSUE	DS	01.06.21
REV.	DESCRIPTION	BY	DATE
DESIGN	AJS		
DRAWN	AJS		
CHECKED	W		
MFG. APPR.	M6061T6T		
APPROVED			
DE APPR.			
DATE	13.06.12		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA			
DRAWING NO. REV. C			
M6061T6T SHEET 1 OF 1			
TITLE SCALE			
6061-T6 TUBING NTS			
COPYRIGHT © 2001 BY DART AEROSPACE LTD. THIS DRAWING IS THE PROPERTY OF DART AEROSPACE LTD. AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT PERMISSION IN WRITING FROM DART AEROSPACE LTD.			



# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M6061 T6 70.625W.041  
 DATE: 19/01/16

PO / BATCH NO.: P0042207 / 5145221

MATERIAL CERT REC'D: Yes  
 QUANTITY RECEIVED: 24ft  
 QUANTITY INSPECTED: 24ft  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.625"  
 THICKNESS RECEIVED: 0.625"  
 SHEET SIZE ORDERED: —  
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<input checked="" type="radio"/> N	
CORRECT FINISH	<input checked="" type="radio"/> Y	N	
CORROSION	Y	<input checked="" type="radio"/> N	
CORRECT GRAIN DIRECTION	<input checked="" type="radio"/> Y	N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="radio"/> Y	N	ASTM B210
CORRECT THICKNESS	<input checked="" type="radio"/> Y	N	
PHOTO REQUIRED	Y	<input checked="" type="radio"/> N	
CORRECT REF # TO LINK CERT	<input checked="" type="radio"/> Y	N	MT: F00278320 0001
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="radio"/> Y	N	
CORRECT M# ON THE MATERIAL	<input checked="" type="radio"/> Y	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<input checked="" type="radio"/> N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<input checked="" type="radio"/> N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
TYPE OF MATERIAL SIZE OF TEST SAMPLE HARDNESS / DUROMETER READING	HRC	HRB	DUR A	DUR D	WEBSTER

testers located in the Quality Office

<b>QC 18 INSPECTION</b>		<b>ENGINEERING SIGNOFF (if required)</b>	
INSPECTED BY: <u>DAS 61</u> DATE: <u>19/01/16</u>		SIGNED OFF BY: _____ DATE: _____	

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in



# FABRICATED PRODUCTS

KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
6573 W. WILLIS ROAD  
CHANDLER, AZ 85226

## CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

CUSTOMER PO NUMBER: M49377399-1		CUSTOMER PART NUMBER: 43284		PRODUCT DESCRIPTION: Drawn Seamless Tube/Pipe	
KAISER ORDER NUMBER: 224376	LINE ITEM: 001	SHIP DATE: 10/23/2017	KAISER LOT NUMBER: F00252943	ALLOY: 6061	TEMPER: T6
WEIGHT SHIPPED: 879.000 LB	QUANTITY: 326.000 PCS	B/L NUMBER: 227235	DIAM/DAF/THKNS: 	WIDTH: 	LENGTH: 12.000 FT
SHIP TO:  TW METALS INC 235 WEST TUBEWAY DRIVE CAROL STREAM, IL 60188 USA			SOLD TO:  TW METALS INC 760 CONSTITUTION DRIVE SUITE 204 EXTON, PA 19341 USA		

### Actual Physical Properties

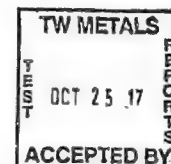
REFERENCE	DASH#	SAMPLE#	UTS (KSI)	YTS (KSI)	ELONG%	HARDNESS	CON%IACS	BEND
F00252943	0001	1	48.0	41.2	21.0	N/A	N/A	N/A
F00252943	0002	1	47.4	40.5	21.0	N/A	N/A	N/A

### Chemical Composition (wt%), Aluminum Remainder

LIMITS	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Zr	Ea	Tot
Maximum	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	NA	NA	NA	0.05	0.15
Minimum	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	NA	NA	NA	0.00	0.00
D20573	.59	.26	.22	.04	.97	.09	.04	.03	.00	.00	.00	.01	.02

### Applicable Requirements:

Description: OD: 1.0000"; Wall: 0.0650"; Round @  
AMS4082P AMS-WW-T-700/6C ASTM B210-12 WW-T-700/6F  
WE TAKE EXCEPTION TO PARA. 5.2.1., Per AMS4082P, WAS NOT OILED.  
This Product Complies to FAR BAA, DFARS BAA, FAR TAA  
COMPLIES TO DIN EN 10204 JAN 2005  
No Weld Repair. Mercury Free.



### Miscellaneous Notes

MANUFACTURED IN USA MELTED IN USA  
MATERIAL COMPLIES WITH FAR BAA (FAR 52.225-1, BUY AMERICAN ACT- SUPPLIES), DFARS BAA  
(DFARS 252.225-7001 BUY AMERICAN ACT & BAL OF PAYMENTS PROG), AND FAR TAA (FAR 52.225-5  
TRADE AGREEMENTS).

**KAISER**  
**ALUMINUM**  
**FABRICATED PRODUCTS**

KAISER ALUMINUM  
FABRICATED PRODUCTS, LLC  
6573 W. WILLIS ROAD  
CHANDLER, AZ 85226

**CERTIFIED TEST REPORT**

<http://Online.KaiserAluminum.com>

**CERTIFICATION**

Kaiser Aluminum Fabricated Products, LLC ('Kaiser') hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms & conditions of sale. Test reports are on file subject to examination.

Hans Kattentidt, Quality Manager



C	COMPLETE REFORMAT. ADDED T6510 & T6511. ADDED AMIS 4093, ASTM B210 & ASTM B241 ADDED MATERIAL TOLERANCE	AJS	13.06.12
B	ADD QQ-A-2007B & QQ-A-225/G	CP	04.01.23
A	NEW ISSUE	DS	01.08.21
REV.	DESCRIPTION	BY	DATE
DESIGN	DART AEROSPACE LTD		
DRAWN	HAWKESBURY, ONTARIO, CANADA		
CHECKED	DRAWING NO. M60811T8T	REV. C	SHEET 1 OF 1
APPROVED	TITLE 9081-T6 TUBING	SCALE	NTS
DATE	13.06.12	COPYRIGHT © 2081 BY DART AEROSPACE LTD THIS DRAWING IS THE PROPERTY OF DART AEROSPACE LTD. IT IS TO BE USED ONLY FOR THE PROJECT AND QUANTITY SPECIFIED HEREON. IT IS NOT TO BE REPRODUCED OR COPIED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF DART AEROSPACE LTD.	

# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M6061 T6 71.000W065  
 DATE: 19/01/16

PO / BATCH NO.: P0042207/S145222

MATERIAL CERT REC'D: Yes  
 QUANTITY RECEIVED: 60ft  
 QUANTITY INSPECTED: 60ft  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 1.000"  
 THICKNESS RECEIVED: 1.000"  
 SHEET SIZE ORDERED: —  
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	(N)	
CORRECT FINISH	(Y)	N	
CORROSION	Y	(N)	
CORRECT GRAIN DIRECTION	(Y)	N	
CORRECT MATERIAL PER M-DRAWING	(Y)	N	AMS 4082
CORRECT THICKNESS	(Y)	N	
PHOTO REQUIRED	Y	(N)	
CORRECT REF # TO LINK CERT	(Y)	N	HT: F00252943001
CORRECT MATERIAL IDENTIFICATION	(Y)	N	
CORRECT M# ON THE MATERIAL	(Y)	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	(N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	(N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

<b>QC 18 INSPECTION</b>	<b>ENGINEERING SIGNOFF (if required)</b>
INSPECTED BY: <u>DAS 61</u> DATE: <u>19/01/16</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in





CHANGSHU WALSIN SPECIALTY STEEL CO.,LTD.

# MILL INSPECTION CERTIFICATE

EN 10204 3.1

m49371981 6-12-17 d

CUSTOMER: TA CHEN STAINLESS PIPE CO.,LTD.		HEAT NO.: 11H347																									
DATE: 2015/07/03		SPECIFICATION: ASTM A312-14B/A376-13/ASME SA312-13/SA 376-13																									
COMMODITY: STAINLESS STEEL SEAMLESS PIPES		CERTIFICATE NO.: 2015070325008137																									
DELIVERY CONDITION: COLD FINISHED SOLUTION ANNEALED AND PICKLED		GRADE: TP304-304L																									
CHEMICAL COMPOSITION (WT%)																											
ELEMENTS	C	Si	Mn	P	S	Ni	Cr	Mo	N	Cu	Ti	Nb	Ni*	Co	V	B	Al	Sb	Pb	As	Sn	Fe	Bi	Zr	Al+Ti	PREN	Ferrite content
SPECIFICATION	min	0.000	0.000	0.000	0.000	0.000	18.000																				
	max	0.035	0.750	2.000	0.045	0.030	20.000																				
RESULTS		0.022	0.410	0.880	0.032	0.001	18.110																				
SIZE	NPS(") *WT(SCH)*LG(mm)	PACKAGE NO.	PIECES	WEIGHT		TS	YS		EL (50mm)	HARDNESS	FLATTENING TEST	FLARING TEST	I.C. TEST	PITTING CORROSION (mg/dm <sup>2</sup> .day)	GRAIN SIZE	Lot No.	HYDROSTATIC TEST MPa	EDDY CURRENT TEST	ULTRASONIC TEST								
				FT	(kg)		0.2% MPa	1% MPa																			
3/8"40S*6096-7315	TA24-125	60		1315.06	332	610/610	260/258	63.5/63.5	76/75.5	ACCEPTABLE	/	ACCEPTAB	/	/	/	201505-TG-F32	/	ACCEPTABLE	/								
3/8"80S*6096-7315	TA24-148	52		1210.3	398	605/605	265/265	64/63	75.5/76	ACCEPTABLE	/	ACCEPTAB	/	/	/	201506-LG-A45	/	ACCEPTABLE	/								
TOTAL:				112	2525.36	730																					
REMARK:																				<div>TW METALS JUN 12 17 ACCEPTED BY</div> <div>Solution Annealed 1900F</div>							
AS PER ASTM A312-14B/A376-13/ASME SA312-13/SA376-13/ASTM A999-13																											
NACE MR0175-2003 LENGTH: 20'24FT																											
AS PER PROFORMA INVOICE NO. L51738-S																											
I.C. TEST PER ASTM A262-92a E MIL-P24691/3 MIL-P11440																											
NO REPAIR BY WELDING																											
MATERIAL FREE FROM MERCURY CONTAMINATION																											
COUNTRY OF MELT CHINA, COUNTRY OF MANUFACTURE CHINA																											
ET STANDARD PRACTICE, ASTM E426																											
REFERENCE DISCONTINUITY: DRILLED HOLE																											
WATER QUENCHED ANNEALING TEMPERATURE 1060°C																											
MATERIAL COMPLAINT WITH ROHS DIRECTIVE 2002/95/EC																											
FREE OF RADIATION																											
ADDRESS: 56# RENMIN ROAD, HAIYU TOWN, CHANGSHU CITY, JIANGSU PROVINCE, CHINA 215519 TEL: +86-512-52566260 FAX: +86-512-52568027																											
WILCS-QP-T24-06																											
QUALITY MANAGER																											

Sam Bin

人

# SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: TP304/TP316 STAINLESS STEEL SEAMLESS PIPE

SPECIFICATION:

ASTM A312 ASME SA312

PART NUMBER:

M304PD.DDD|W|TTT  
OD | WALL THICKNESS |

WHERE "D.DDD" = OUTSIDE DIAMETER IN INCHES PER NPS DESIGNATION (REF TABLE 1)  
AND "TTT" = WALL THICKNESS IN INCHES PER PIPE SCHEDULE (REF TABLE 1)

EG. 3/8 SCHEDULE 40 PIPE = M304P0.675W.091

TABLE 1: DIMENSIONS OF NPS PIPE (REF ANSI B36.10/19)

NPS Designation	Outside Diameter (in)	Pipe Schedule Wall Thickness (in)	
		SCHEDULE 40	SCHEDULE 80
1/8	0.405	0.068	0.095
1/4	0.540	0.088	0.119
3/8	0.675	0.091	0.126
1/2	0.840	0.109	0.147
3/4	1.050	0.113	0.154
1	1.315	0.133	0.179
1-1/4	1.660	0.140	0.191
1-1/2	1.900	0.145	0.200
2	2.375	0.154	0.218
2-1/2	2.875	0.203	0.276
3	3.500	0.216	0.300
3-1/2	4.000	0.226	0.318
4	4.500	0.237	0.337

RELEASED

2017 JUN 19  
ECN 17-510

APPROVED

REV.	NEW/ISSUE	DESCRIPTION	CP	BY	DATE
DESIGN	CP	DART AEROSPACE LTD			
DRAWN	CP	HAWKESBURY, ONTARIO, CANADA			
CHECKED	ML	DRAWING NO.			
MFG. APPR.	DD	M304P			
APPROVED	WM	TITLE			
DE APPR.	CP	304/316 PIPE			
DATE	17.02.24				

REVISIONS  
REV. A  
SHEET 1 OF 1  
SCALE  
NTS  
DART AEROSPACE LTD  
HAWKESBURY, ONTARIO, CANADA  
THIS DOCUMENT IS UNCLASSIFIED AND UNCONTROLLED  
REF TO BE USED FOR ANY PURPOSES OR COPIES OR REPRODUCTIONS  
WITHOUT THE WRITTEN PERMISSION OF DART AEROSPACE LTD

# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M304P0.675W.091  
 DATE: 19/01/16

PO / BATCH NO.: P0042207/5145229

MATERIAL CERT REC'D: Yes  
 QUANTITY RECEIVED: 23.417ft  
 QUANTITY INSPECTED: 23.417ft  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.675"  
 THICKNESS RECEIVED: 0.625"  
 SHEET SIZE ORDERED: —  
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<input checked="" type="radio"/> N	
CORRECT FINISH	<input checked="" type="radio"/> Y	N	
CORROSION	Y	<input checked="" type="radio"/> N	
CORRECT GRAIN DIRECTION	<input checked="" type="radio"/> Y	N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="radio"/> Y	N	ASTM A312
CORRECT THICKNESS	<input checked="" type="radio"/> Y	N	
PHOTO REQUIRED	Y	<input checked="" type="radio"/> N	
CORRECT REF # TO LINK CERT	<input checked="" type="radio"/> Y	N	HT: 11H347
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="radio"/> Y	N	
CORRECT M# ON THE MATERIAL	<input checked="" type="radio"/> Y	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<input checked="" type="radio"/> N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<input checked="" type="radio"/> N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

*testers located in the Quality Office*

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS 61</u> DATE: <u>19/01/16</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in



## MILL TEST REPORT

Purchaser.: TW METALS-Carol Stream				Certificate No.: 2018-1-65					
Contract No.: TWM P.O.No.: M49373789				Date of Issue.: 2018.1.3					
Commodity: Stainless Steel Seamless Tubes		Specifications: ASTM A213-17/ASME SA213-15/ASTM A269-15a EAW							
Process: Cold Drawn				Delivery Condition: OD Polished to 240 Grit					
Steel Grade	Heat Number	Lot Number	Dimensions		Quantity				
TP304/TP304L	YX1606-643	12-82	3/8"x0.065"x20'		Pieces	Feet			
					500	10,000			
Chemical Composition by Weight (%)									
Element	C	Mn	P	S	Si	Cr	Ni	Mo	Co
Requirements	≤0.035	≤2.00	≤0.045	≤0.030	≤1.00	18.00-20.00	8.00-12.00	-	-
Ladle Analysis	0.019	1.22	0.034	0.002	0.31	18.23	8.09	-	-
Product Analysis	0.021	1.26	0.030	0.003	0.26	18.53	8.26	-	-
Mechanical Properties									
Test Item	Elongation (% in 2")		Tensile Strength (PSI)		Yield Strength (PSI)				
			Rm		Rp / 0.2%				
Requirements	≥35		≥75,000		≥30,000				
Test Results	61/62		97,000/98,000		41,000/42,000				
Test Item	Reduction of Area Z (%)	Hardness	Cold Bend Test	Flaring Test	Flattening Test	Flange Test	P.M.I. Test		
Requirements	-	HRB≤80	-	30%	e=0.09	-	-		
Test Results	-	77/79	-	Passed	Passed	-	OK		
Test Item	Eddy Current Test	Air Underwater Pressure Test	Ultrasonic Test	Intergranular Corrosion Test	Macroscopic Inspection				
Requirements	ASTM E 426	-	-	ASTM A262 E	End Cut	Appearance			
Test Results	Passed	-	-	OK	OK	OK			

ISO 9001:2008 Certified by CAS 117 16 QU 0053-06 ROS

PED Certified by SZUTEST 2195-PED-1526002

## Additional Remarks:

- (1) All tubes annealed to above 1900 Deg F and water quenched below 800 Deg F in 3 minutes
- (2) All tubes tested per ASTM A1016-17
- (3) Materials is NACE MR0103-2007 compliant (per Section 2.5)
- (4) Materials is NACE MR0175/ISO 15156-2003 compliant (per Section 4.2.1)
- (5) In Compliance with EN 10204-3.1
- (6) In Compliance with RoHS Stipulation
- (7) No weld repair performed
- (8) Free from mercury contamination
- (9) Free from radioactive contamination
- (10) Billets melt and pipes/tubes manufactured in China
- (11) All tubes 100% PMI tested
- (12) All tubes 100% Eddy Current tested

CANNOT CERTIFY COMPLIANCE  
FAR BAA / DFARS BAA / FAR TAA



By:

James Shi

James Shi / Manager

Quality Control Department

We hereby certify that this report is true and correct.

Jiangsu Pufa Stainless Steel Tube Co., Ltd.

No. 99, Xuean Middle Road, Dongchen Town, Rugao City, Jiangsu Province, P.R.China

187

# SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING

SPECIFICATION: ASTM A213 OR ASME SA213 OR ASTM A289

WALL THICKNESS TOLERANCE PER ASTM A289 AS FOLLOWS:

OD (IN)	PERMISSIBLE OD TOL (IN)	PERMISSIBLE WALL TOL
UP TO 1/2	±0.005	±15%
1/2 TO 1 1/2 EXCL.	±0.005	±10%
1 1/2 TO 3 1/2 EXCL.	±0.010	±10%
3 1/2 TO 5 1/2 EXCL.	±0.015	±10%
5 1/2 TO 8 EXCL.	±0.030	±10%

PART NUMBER:

M304TR10.DDD|W|.TTT  
OD | WALL

WHERE "D.DDD" = OUTSIDE DIAMETER IN INCHES  
AND ".TTT" = WALL THICKNESS IN INCHES

EG. 0.375" OD X 0.065" WALL TUBING = M304TRO 375W 065

RELEASED  
R 08/18/23 MFB

B	REFORMAT DWG. ADD SPECS (2N DB-1): REF PAR 08-020A	CP	08.10.20
A	NEW ISSUE	DS	01.06.08
REV	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR			
DATE	08.10.20		
DART AEROSPACE LTD HAWKESBURY ONTARIO CANADA			
DRAWING NO. M304TR		REV B	
TITLE 304/316 ROUND TUBING		SHEET 1 OF 1	
SCALE NTS		DATE	
COPYRIGHT © 2004 BY DART AEROSPACE LTD. THIS DRAWING IS THE PROPERTY OF DART AEROSPACE LTD. AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT PERMISSION IN WRITING FROM DART AEROSPACE LTD.			

# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M304TR0.375W.065  
 DATE: 19/01/16

PO / BATCH NO.: P0042207/5145223

MATERIAL CERT REC'D: 1/25  
 QUANTITY RECEIVED: 604  
 QUANTITY INSPECTED: 604  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.375"  
 THICKNESS RECEIVED: 0.375"  
 SHEET SIZE ORDERED: —  
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<input checked="" type="checkbox"/> N	
CORRECT FINISH	<input checked="" type="checkbox"/> Y	N	
CORROSION	Y	<input checked="" type="checkbox"/> N	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/> Y	N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="checkbox"/> Y	N	ASTM A213
CORRECT THICKNESS	<input checked="" type="checkbox"/> Y	N	
PHOTO REQUIRED	Y	<input checked="" type="checkbox"/> N	
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/> Y	N	MT: YX1606-643
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/> Y	N	
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/> Y	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<input checked="" type="checkbox"/> N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<input checked="" type="checkbox"/> N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
TYPE OF MATERIAL	HRC	HRB	DUR A	DUR D	WEBSTER
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

*testers located in the Quality Office*

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)	
INSPECTED BY: <u>DAS</u> <u>61</u> <u>9-89</u>	SIGNED OFF BY: _____		
DATE: <u>19/01/16</u>	DATE: _____		

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

# TUSCO TUBE

MILL TEST CERTIFICATE  
ISO 9001:2008/EN10204 3.1

CUSTOMER: TW METAL

P.O.: US-2409

TW ORDER NO. M49388494

GRADE: ASTM A213/A213M-18; ASME SA213/SA213M-17 AVG WALL

ASTM A269/A269M-15A TP304/304L

COMMODITY: STAINLESS STEEL SEAMLESS TUBE

CONDITION: COLD FINISH / SOLUTION TREATED/PICKLED/PLAIN END/OD POLISHED 240 GRIT.

CERTIFICATE NO.: TC2018091721

HEAT NO.: 115349

## CHEMICAL COMPOSITION (%)

ELEMENTS	C	Si	Mn	P	S	Ni	Cr	Mo	Ti	Cu	N	Co
SPEC						8	18					
MIN												
MAX	0.035	1	2	0.045	0.03	12	20					
RESULTS	0.024	0.4	0.89	0.032	0.001	8.10	18.25					

## PHYSICAL PROPERTIES

OD (INCH)	Dimensions		Quantity		Tensile Properties			Hardness HRB	Flattening	Flaring	Grain Size	Hydrostatic	I.C.T A262E	EDDY CURRENT TEST (100%)
	W.T (INCH)	LENGTH (FT)	FT	KG	Y.S 0.2% MPa	T.S MPa	EL ≥35(%)							
0.500	0.035	20	14860	1188.8	305	685	62	79	OK	OK	OK	/	OK	OK
0.500	0.065	20	6600	914.1	280	670	64	77	OK	OK	OK	/	OK	OK
0.250	0.035	20	22000	814.0	315	690	62	79	OK	OK	OK	/	OK	OK

## REMARKS:

IN COMPLIANCE TO NACE MR0175-2015/MR0103  
SOLUTION HEAT TREATMENT: 1050°C X 1.5m/min  
NO WELD REPAIR WAS PERFORMED  
FREE FROM MERCURY CONTAMINATION  
FREE FROM RADIATION CONTAMINATION  
IC TESTING ACCORDANCE TO ASTM A262 E-SATISFACTORY  
MELT AND MANUFACTURE COUNTRY: CHINA  
RoHS COMPLIANT  
PMI TESTING DONE.



MATERIAL TEST CERTIFICATES TO EN 10204/3.1

MATERIAL COMPLIANT WITH ISO 9001:2008

THE FOLLOWING CLAUSES ARE NOT APPLICABLE;

~ FAR BAA(FAR 52.225-1 BUY AMERICAN ACT-SUPPLIES)

~ DFARS BAA(DFARS 252.225-7001 BUY AMERICAN ACT & BAL. OF PAYMENTS PROG

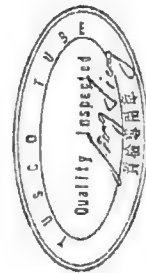
~ FAR TAA( FAR 52.225-5 TRADE AGREEMENTS)

ALL MATERIAL PROVIDED UNDER THIS PURCHASE ORDER IS FREE OF

CONFLICT MINERALS IN ACCORDANCE WITH THE DODD FRANK ACT SECTION 1502

ADD:ZHONGXIN ROAD, XUE'AN INDUSTRY PARK, RUGAO CITY, JIANGSU PROVINCE

MANAGER OF QUALITY ASSURANCE DEPARTMENT



1. WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN TESTED AND THE TEST RESULTS ARE IN COMPLIANCE WITH THE TERMS OF THE PURCHASE ORDER OR CONTRACT OF TW METALS  
PO#M49388494

2. THE CERTIFICATE SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF TUSCO TUBE.

**SPECIFICATION CONTROL DRAWING**

PURCHASE MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING

SPECIFICATION: ASTM A213 OR ASME SA213 OR ASTM A269

WALL THICKNESS TOLERANCE PER ASTM A269 AS FOLLOWS:

OD (IN)	PERMISSIBLE OD TOL. (IN)	PERMISSIBLE WALL TOL.
UP TO 1/4	±0.005	±15%
1/4 TO 1 1/2 EXCL.	±0.005	±10%
1 1/2 TO 3 1/2 EXCL.	±0.010	±10%
3 1/2 TO 5 1/2 EXCL.	±0.015	±10%
5 1/2 TO 8 EXCL.	±0.030	±10%

PART NUMBER: M304TR(D.DDD)(W)TTT

WHERE "D.DDD" = OUTSIDE DIAMETER IN INCHES  
AND "TTT" = WALL THICKNESS IN INCHES

EG. 0.375" OD X 0.065" WALL TUBING = M304TR0.375W 065

RELEASED  
R 09/26/23 1430

B	REFORMAT DWG. ADD SPECS (ZN DB-1)	CP	08 10 20
A	NEW ISSUE	DS	01 06 08
REV	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	08.10.20		
DART AEROSPACE LTD HAMPSHIRE, ONTARIO CANADA			
DRAWING NO. M304TR			
TITLE 304/316 ROUND TUBING			
SHEET 1 OF 1			
REV B			
SCALE NTS			
COPYRIGHT © 2001 BY DART AEROSPACE LTD			



# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M304TR0.500W.035  
 DATE: 1901/16

PO / BATCH NO.: P0042207/8145221

MATERIAL CERT REC'D: Yes  
 QUANTITY RECEIVED: 606+  
 QUANTITY INSPECTED: 606+  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.500"  
 THICKNESS RECEIVED: 0.500"  
 SHEET SIZE ORDERED: —  
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	(N)	
CORRECT FINISH	(Y)	N	
CORROSION	Y	(N)	
CORRECT GRAIN DIRECTION	(Y)	N	
CORRECT MATERIAL PER M-DRAWING	(Y)	N	ASTM A213
CORRECT THICKNESS	(Y)	N	
PHOTO REQUIRED	Y	(N)	
CORRECT REF # TO LINK CERT	(Y)	N	HT-115349
CORRECT MATERIAL IDENTIFICATION	(Y)	N	
CORRECT M# ON THE MATERIAL	(Y)	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	(N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	(N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

<b>QC 18 INSPECTION</b>		<b>ENGINEERING SIGNOFF (if required)</b>	
INSPECTED BY: <u>DAS 61</u> DATE: <u>1901/16</u>	SIGNED OFF BY: _____ DATE: _____		

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

# MISCO

## JIAXING MT STAINLESS STEEL CO.,LTD

### MILL TEST CERTIFICATE

EN10204 3.1 CERTIFICATE

ISO 9001: 2015 TUV SUD CERT REGISTRATION No.: 01 100 095954

PED/97/23/CE EURO CERT CERTIFICATE NO:CN.CE.111081-02/14



Precisely Right.

CERTIFICATE NO. : 18MTC-181008-03

SALES CONTRACT NO. : M 49387568

COMMODITY: STAINLESS STEEL SEAMLESS TUBE

SPECIFICATION: ASTM A269-15a, ASTM A213-18, ASME SA213-17

PURCHASER: KASUGAI CO., LTD.

ORDER: M 49387568

DATE OF REPORT: 2018-10-8

Steel Grade	Heat No.	Dimensions			Quantity		Process	Delivery Condition	Macroscopic Inspection	
		O.D. (INCH)	W.T. (INCH)	Length (FT)	FT	Piece			End Cut	Appearance
TP304/304L	N180131AS13	3/4	0.049	20	10060	503	Cold-Drawn	Pickled & 320 Grit polish	Passed	Passed

#### Chemical Composition (W.T. %)

Element	C	Si	Mn	P	S	Cr	Ni	Mo
Requirements	≤0.035	≤1.00	≤2.00	≤0.045	≤0.030	18.0-20.0	8.0-11.0	-
Ladle Analysis	0.017	0.37	1.34	0.038	0.001	18.24	8.01	-

#### Mechanical Properties

Test Item	Y.S. (MPa)		T.S. (MPa)	EL. (%)	Reduction of Area Z (%)	Hardness HRB	Cold Bend Test	Flaring Test	Flattening Test	P.M.I. TEST
	Rp0.2	Rm								
Requirements	≥205	≥515		≥35	-	≤80	-	-	e=0.09	-
Test Results	265	585		47	-	77	Passed	Passed	Passed	Passed

#### Non Destructive Tests

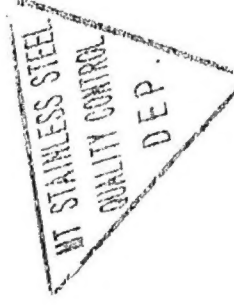
Test Item	Remarks : - ASTM A269-15a, ASTM A213-18, ASME SA213-17 - TUBES TESTED PER ASTM A1016 - SOLUTION HEAT TREATMENT: 1050°C X 1.5h/min - NO WELD REPAIR WAS PERFORMED. - PMI TESTING DONE ON EACH TUBE - SATISFACTORY - IN COMPLIANCE WITH NACE MR0175/ISO 15156-2015 - FREE FROM MERCURY CONTAMINATION - MATERIAL IS FREE FROM RADIOACTIVITY - VISUAL CHECK IS SATISFACTORY - COUNTRY OF ORIGIN: CHINA - COUNTRY OF MELT: CHINA									
	Eddy Current Test									
	ASTM E 426									
Requirements	ASTM E 426									
Test Results	Passed									

1. WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN TESTED AND THE TEST RESULTS ARE IN COMPLIANCE WITH THE TERMS OF THE PURCHASE ORDER OR CONTRACT

2. THE CERTIFICATE SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF THE COMPANY.

Prepared by:

Approved by:



# SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING

SPECIFICATION: ASTM A213 OR ASME SA213 OR ASTM A269

WALL THICKNESS TOLERANCE PER ASTM A269 AS FOLLOWS:

OD (IN)	PERMISSIBLE OD TOL (IN)	PERMISSIBLE WALL TOL
UP TO 1/4	±0.005	±15%
1/4 TO 1 1/2 EXCL.	±0.005	±10%
1 1/2 TO 3 1/2 EXCL.	±0.010	±10%
3 1/2 TO 5 1/2 EXCL.	±0.015	±10%
5 1/2 TO 8 EXCL.	±0.030	±10%

PART NUMBER:

M304TR(D.DDD)W(TTT)  
OD WALL

WHERE "D.DDD" = OUTSIDE DIAMETER IN INCHES  
AND "TTT" = WALL THICKNESS IN INCHES

EG. 0.375" OD X 0.065" WALL TUBING = M304TR0.375W.065

RELEASED  
R 08/03/73

B	REFORMAT DWG. ADD SPECS (ZN DB-1), REF PAR 08-020A	CP	06.10.20
A	NEW ISSUE	DS	01.05.08
REV	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	08.10.20		
DART AEROSPACE LTD HAWKESBURY ONTARIO, CANADA			
DRAWING NO. M304TR			
TITLE 304/316 ROUND TUBING			
SHEET 1 OF 1			
REV. B			
SCALE NTS			
COPYRIGHT © 2001 BY DART AEROSPACE LTD. No part of this drawing may be reproduced or transmitted in any form or by any means electronic or mechanical, including photocopying and recording, or by any information storage and retrieval system, without permission in writing from DART Aerospace Ltd.			



# MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M304 TRD. 750W.044  
 DATE: 19/01/16

PO / BATCH NO.: P0042207/5145225

MATERIAL CERT REC'D: Yes  
 QUANTITY RECEIVED: 60ft  
 QUANTITY INSPECTED: 60ft  
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.750"  
 THICKNESS RECEIVED: 0.750"  
 SHEET SIZE ORDERED: —  
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<input checked="" type="checkbox"/> N	
CORRECT FINISH	<input checked="" type="checkbox"/> Y	N	
CORROSION	Y	<input checked="" type="checkbox"/> N	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/> Y	N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="checkbox"/> Y	N	ASTM A213
CORRECT THICKNESS	<input checked="" type="checkbox"/> Y	N	
PHOTO REQUIRED	Y	<input checked="" type="checkbox"/> N	
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/> Y	N	HT-N180131A513
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/> Y	N	
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/> Y	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<input checked="" type="checkbox"/> N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<input checked="" type="checkbox"/> N	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
TYPE OF MATERIAL	HRC	HRB	DUR A	DUR D	WEBSTER
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

*testers located in the Quality Office*

<b>QC 18 INSPECTION</b> INSPECTED BY: <u>DAS 61</u> DATE: <u>19/01/16</u>	<b>ENGINEERING SIGNOFF (if required)</b> SIGNED OFF BY: _____ DATE: _____
---	---

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in